BRITISH COLUMBIA
MINISTRY OF FORESTS AND RANGE

Tree Farm Licence 53

Dunkley Lumber Ltd.

Rationale for Allowable Annual Cut (AAC) Determination

Effective October 19, 2005

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Objective of this Document

This document is intended to provide an accounting of the factors I have considered and the rationale I have employed in making my determination, under Section 8 of the *Forest Act* (the Act), of the allowable annual cut (AAC) for Tree Farm Licence (TFL) 53. This document also identifies where I believe new or better information is needed for incorporation into future determinations.

Description of the TFL

TFL 53 is held by Dunkley Lumber Ltd. ('the licensee'). The TFL is 87 693 hectares in size, and is located along Highway 97 between Prince George and Quesnel near the small communities of Hixon and Strathnaver. The TFL's western edge is visible from Highway 97, and it is bordered by the Prince George Timber Supply Area (TSA) as well as TFL 52 and a small portion of the Quesnel TSA. It is administered by the British Columbia Forest Service (BCFS) Prince George Forest District in the Northern Interior Forest Region (NIFR).

The TFL area largely falls within the Sub-Boreal Spruce (SBS) biogeoclimatic zone, with approximately 17 percent of the productive area in the Engelmann Spruce Subalpine Fir (ESSF) zone. Forest stands within the SBS comprise primarily interior white spruce, lodgepole pine and coniferous mixed wood stands, with a small component of interior Douglas-fir. Approximately 26 percent of the forested land base is occupied by stands where the dominant species is lodgepole pine.

The terrain is undulating with rolling hills and several small lakes and minor drainages. Productive forest comprises 79 637 hectares of the TFL. In deriving the timber harvesting land base, 11 194 hectares of productive forest were excluded to account for low productivity sites, recreation areas, environmentally sensitive areas, non-merchantable forest types, riparian reserve and riparian management zones, terrain instability, and wildlife. The resultant timber harvesting land base is estimated to currently be 68 644 hectares, or 78 percent of the total TFL area.

Timber harvested from TFL 53 is processed in the licensee's sawmill in Strathnaver. With the 2003 AAC determination, TFL 53 supplies approximately 30 percent of the total volume utilized by this mill.

Critical issue: mountain pine beetle epidemic

TFL 53 lies within the area in central British Columbia that is experiencing a mountain pine beetle (MPB) epidemic. Although MPB epidemics are natural events, the current infestation is unprecedented in its severity and extent. In areas surrounding the TFL, the infestation has been expanding rapidly, both in terms of the area infested, and the volume of trees killed.

Provincial aerial survey data show the beetle affected about 7 million hectares in central B.C. in 2004. The susceptibility of stands is largely determined by stand age and

percentage of pine. Older stands, with higher proportions of pine, are most at risk. On TFL 53, an increase from endemic levels of MPB was first noticed in 2000. The licensee rated the susceptibility of stands on the TFL; stands with 30 percent or more pine and over 60 years of age were considered highly susceptible. Stands with from one to 30 percent pine over 60 years of age were considered moderately susceptible.

About 26 percent of the stands on the forested land base of TFL 53 are dominated by lodgepole pine.

At the time the analysis was conducted, the total volume of timber on the timber harvesting land base in January 2003 was estimated to be approximately 12.6 million cubic metres, or about 87 percent of the total inventory on the TFL. The licensee estimated at that time that the current pine volume on the timber harvesting land base in moderate and high-risk stands was about 3.6 million cubic metres.

The licensee's estimate of current mortality in merchantable pine stands is in the 80 to 90 percent range. The licensee initially attempted to manage the infestation within the existing AAC of 239 500 cubic metres through the removal of beetle-infested trees. By 2003 the licensee and the British Columbia Forest Service recognized that an increase in the AAC would be required to address the growing epidemic. At that time the AAC was increased to 500 000 cubic metres per year.

For this determination I have reviewed all of the factors specified in Section 8 of the *Forest Act*, and I have given them due consideration. However, the factors that will be discussed in detail in this rationale are limited, and in particular include the implications of the MPB epidemic and First Nations considerations. I note that the impact of this epidemic overwhelms all other factors in this determination. I have documented my considerations regarding management objectives for the control and salvage of the damage done by beetles under section 8(8)(e) of the *Forest Act: Abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.*

History of the AAC

In 1987, the licensee applied for a tree farm licence upon surrender of its forest licence in the Prince George TSA. In its application, the licensee requested that the quota which had been committed to it from the Prince George TSA (167 380 cubic metres per year) be transferred to a tree farm licence tenure to secure a supply of timber for the licensee's sawmill in Strathnaver. A land base was delineated that would support the licensee's quota plus a Small Business Forest Enterprise Program (SBFEP) allocation. On May 30, 1989, the chief forester determined an AAC for TFL 53 of 187 630 cubic metres as proposed in Management Plan No. 1, and the TFL was issued on September 1, 1989. The AAC included 28 620 cubic metres to be allocated to the SBFEP.

On December 23, 1994, an AAC of 204 700 cubic metres was determined for TFL 53, which included the allocation of 28 620 cubic metres for the SBFEP. The 1994 determination attributed 4100 cubic metres to the residual balsam-leading stands (resulting from historic intermediate utilization (IU) logging) containing merchantable timber volumes of between 50 and 140 cubic metres per hectare.

On December 15, 1999, an AAC of 239 500 cubic metres (an increase of approximately 17 percent), was determined for TFL 53. In this AAC, 4100 cubic metres were again attributed to residual balsam-leading stands and 2000 cubic metres were attributed to aspen-coniferous stands. The AAC included 28 620 cubic metres for the SBFEP (now administered by British Columbia Timber Sales, BCTS).

As a result of the MPB epidemic in the central interior of British Columbia and its effect on stands on TFL 53, the deputy chief forester determined a new AAC, effective June 1, 2003, of 500 000 cubic metres, in order to provide the licensee with sufficient AAC to mitigate timber losses stemming from the epidemic.

Effective March 31, 2004, the portion of the AAC available to the licensee on TFL 53 was reduced by 2297 cubic metres through the *Forestry Revitalization Act*.

New AAC determination

Effective October 19, 2005, the new AAC for TFL 53 will be as follows:

- From October 19, 2005 to October 19, 2008: 880 000 cubic metres;
- From October 20, 2008 until the next determination: 219 000 cubic metres.

This decision will remain in effect until a new AAC is determined, which must take place within five years of this determination.

Information sources used in the AAC determination

Information considered in determining the AAC for TFL 53 includes but is not limited to the following:

- *Timber Supply Analysis Information Package*: *TFL 53*, Management Plan No. 4, Dunkley Lumber Ltd., accepted December 17, 2003;
- *Timber Supply Analysis Report: TFL 53*, Management Plan No. 4, Dunkley Lumber Ltd., accepted December 9, 2004;
- *Management Plan No. 4: TFL 53*, Dunkley Lumber Ltd, approved May 10, 2005;
- *TFL 53, Twenty-Year Plan*, Dunkley Lumber Ltd., submitted February 2004, accepted May 31, 2004;
- Existing stand yield tables for TFL 53, submitted August 29, 2003, accepted January 12, 2004;
- Managed stand yield tables and site index curves, submitted August 31, 2003; accepted December 13, 2003;
- Summary of public input solicited by the licensee regarding contents of proposed MP No. 4 (MP No. 4, Section 9 and Appendix 4);

- Input received from First Nations through the consultation process. The licensee initiated the information sharing process in September of 2003 and the BCFS initiated its consultation process in January of 2005;
- Tree Farm Licence 53 – Replaced September 1, 1999;
- Prince George LRMP - approved by Cabinet March 1999;
- Lheidli T'enneh Agreement in Principle, June 2003;
- *An Annotated Bibliography on the Effect of Bluestain on Wood Utilization with Emphasis on Mountain Pine Beetle-Vectored Bluestain*, Byrne, T, Woo, K. Uzunovic, A and Watson, P.; Mountain Pine Beetle Initiative Working Paper 2005-4; Natural Resources Canada, 2005;
- *Rate of deterioration, degrade and fall of trees killed by mountain pine beetle: A synthesis of the literature and experiential knowledge*, Lewis, K. and Hartley, I.; Mountain Pine Beetle Initiative Working Paper 2005-14; Natural Resources Canada, 2005;
- Forest Stewardship in the Context of Large-Scale Salvage Operations: An Interpretation Paper, Eng, M., BC Ministry of Forests, 2004;
- Current knowledge of characteristics and utilization of post-mountain pine beetle wood in solid wood products, Byrne, A., Stonestreet, C. and Peter, B., Mountain Pine Beetle Initiative Working Paper 2005-8; Natural Resources Canada, 2005;
- *Dunkley Lumber Ltd. Biodiversity Plan for TFL 53*, Keystone Wildlife Research, February 2000;
- *TFL 53 Rationale for AAC determination*, BCFS, May 30, 2003;
- *TFL 53 Rationale for AAC determination*, BCFS, 1999;
- Letter from the Minister of Forests to the Chief Forester, dated July 28, 1994, stating the Crown's economic and social objectives for the province;
- Memorandum from the Minister of Forests to the Chief Forester, dated February 26, 1996, stating the Crown's economic and social objectives for the province regarding visual resources;
- Letter from the Deputy Ministers of Forests, and Environment, Lands and Parks, dated August 25, 1997, conveying government's objectives regarding the achievement of acceptable impacts on timber supply from biodiversity management;
- Review of TFL 53 and operating conditions through on-site discussions between Dunkley Lumber Ltd. staff and the Deputy Chief Forester on June 9, 2005;
- Technical review and evaluation of current operating conditions through comprehensive discussions with BCFS, the former MWLAP and the former MSRM staff, including the AAC determination meeting held in Victoria on June 30, 2005;
- *Forest Practices Code of British Columbia Act*, consolidated to March 31, 2005;

- *Forest Practices Code of British Columbia Guidebooks*, British Columbia Forest Service (BCFS) and Ministry of Water, Land and Air Protection (MWLAP);
- *Province of BC, Forestry Revitalization Act*, (consolidated to October 21, 2004);
- *Landscape Unit Planning Guide*, BCFS and MWLAP, March 1999;
- *Forest and Range Practices Act*, consolidated to November 2002.
- *Provincial Level Projection of the Current MPB Outbreak – Cumulative percentage of pine killed data 1999 to 2004, projection 2005 to 2014*, Marvin Eng et al. Supported by the Mountain Pine Beetle Initiative of the Canadian Forest Service and the BC Forest Service, April 2005;

Role and limitations of the technical information used

Section 8 of the *Forest Act* requires the chief forester to consider biophysical as well as social and economic information in AAC determinations. A timber supply analysis, and the inventory and growth and yield data used as inputs to the analysis, typically form the major body of technical information used in AAC determinations. Timber supply analyses and associated inventory information are concerned primarily with biophysical factors—such as the rate of timber growth and definition of the land base considered available for timber harvesting—and with management practices.

However, the analytical techniques used to assess timber supply are necessarily simplifications of the real world. There is uncertainty about many of the factors used as inputs to timber supply analysis due in part to variations in physical, biological and social conditions, although ongoing science-based improvements in the understanding of ecological dynamics will help reduce some of this uncertainty.

Furthermore, technical analytical methods such as computer models cannot incorporate all of the social, cultural and economic factors that are relevant when making forest management decisions. Therefore, technical information and analysis do not necessarily provide complete answers or solutions to forest management problems such as AAC determinations. The information does, however, provide valuable insight into potential impacts of different resource-use assumptions and actions, and thus forms an important component of the information required to be considered in AAC determinations.

In determining the AAC for TFL 53, I have considered known limitations of the technical information provided, and I am satisfied that the information provides a suitable basis for my determination.

Statutory framework

Section 8 of the *Forest Act* requires the chief forester to consider particular factors in determining AACs for timber supply areas (TSAs) and TFLs. Section 8 of the Act, consolidated to December 31, 2004, is reproduced in full as Appendix 1.

In accordance with Section 23(3) of the *Interpretation Act*, the deputy chief forester is expressly authorized to carry out the functions of the chief forester, which include those required under Section 8 of the *Forest Act*.

The chief forester has expressed the importance of consistency of judgement in making AAC determinations. I also recognize the need for consistency of approach, and I am familiar with the guiding principles that the chief forester has employed in making AAC determinations. I find these principles to be reasonable and appropriate and I have adopted them as described below in making my AAC determination for TFL 53.

Guiding principles for AAC determinations

Rapid changes in social values and in our understanding and management of complex forest ecosystems mean that there is always uncertainty in the information used in AAC determinations. In making the large number of periodic determinations required for British Columbia's many forest management units, administrative fairness requires a reasonable degree of consistency of approach in incorporating these changes and uncertainties. To make my approach in these matters explicit, I have set out the following body of guiding principles. In any specific circumstance where I may consider it necessary to deviate from these principles, I will explain my reasoning in detail.

Two important ways of dealing with uncertainty are

(i) minimizing risk, in respect of which in making AAC determinations, I consider particular uncertainties associated with the information before me, and attempt to assess and address the various potential current and future social, economic and environmental risks associated with a range of possible AACs; and

(ii) redetermining AACs frequently, to ensure they incorporate current information and knowledge -- a principle that has been recognized in the legislated requirement to redetermine AACs every five years. The adoption of this principle is central to many of the guiding principles that follow.

In considering the various factors that Section 8 of the *Forest Act* requires the chief forester to take into account in determining AACs, I intend to reflect as closely as possible operability and forest management factors that are a reasonable extrapolation from current practices. It is not appropriate to base my decision on unsupported speculation with respect either to factors that could work to *increase* the timber supply—such as optimistic assumptions about harvesting in unconventional areas, or using unconventional technology, that are not substantiated by demonstrated performance—or to factors that could work to *reduce* the timber supply, such as integrated resource management objectives beyond those articulated in current planning guidelines or the *Forest Practices Code of British Columbia* – which is now in transition to the *Forest and Range Practices Act*.

In many areas, the timber supply implications of some legislative provisions, such as those for landscape-level biodiversity, still remain uncertain, particularly when considered in combination with other factors. In each AAC determination the chief forester takes this

uncertainty into account to the extent possible in the context of the best available information. In making my determination for TFL 53, as deputy chief forester, I have followed the same approach.

As British Columbia progresses toward completion of strategic land-use plans, in some cases the eventual timber supply impacts associated with the land-use decisions resulting from the various regional and sub-regional planning processes remain subject to some uncertainty before formal approval by government. In determining AACs, I will not speculate on timber supply impacts that may eventually result from land-use decisions not yet finalized by government.

In some cases, even where government has made a formal land-use decision, it is not necessarily possible to analyze and account for the full timber supply impact in a current AAC determination. Many government land-use decisions must be followed by detailed implementation decisions requiring, for instance, the establishment of resource management zones and resource management objectives and strategies for those zones. Until such implementation decisions are made it would be impossible to assess in full the overall impacts of land-use decisions. In such cases, the legislated requirement for frequent AAC reviews will ensure that future determinations address ongoing plan implementation decisions. Whenever specific protected areas have been designated by legislation or order-in-council, these areas are deducted from the timber harvesting land base and are not considered to contribute any harvestable volume to the timber supply in AAC determinations, although they may contribute indirectly by providing forest cover to help in meeting resource management objectives such as biodiversity.

When appropriate, I will consider information on the types and extent of planned and implemented intensive silviculture activities as well as relevant scientific, empirical and analytical evidence on the likely magnitude and timing of their timber supply effects.

Some have suggested that, given the large uncertainties present with respect to much of the data in AAC determinations, any adjustments in AAC should wait until better data are available. I agree that some data are not complete but this will always be true where information is constantly evolving and management issues are changing. Moreover, in the past, waiting for improved data created the extensive delays that resulted in the urgency to redetermine many outdated AACs between 1992 and 1996. In any case, the data and models available today are superior to those available in the past, and will undoubtedly provide for more reliable determinations.

Others have suggested that, in view of data uncertainties, the chief forester should immediately reduce some AACs in the interest of caution. However, any AAC determination made by the chief forester or myself must be the result of applying our individual judgement to the available information, taking any uncertainties into account. Given the large impacts that AAC determinations can have on communities, no responsible AAC determination can be made solely on the basis of a response to uncertainty. Nevertheless, in making my determination, I may need to make allowances for risks that arise because of uncertainty.

With respect to First Nations' issues, I am aware of the Crown's legal obligations resulting from decisions in recent years made by the Supreme Court of Canada. I am aware of the Crown's legal obligation to consult with First Nations regarding asserted rights and title in a manner proportional to the strength of their claimed interests and the degree to which the decision may impact these interests. In this regard, I will consider any information brought forward respecting First Nations' aboriginal interests, including operational plans that describe forest practices to address First Nations' interests.

The AAC that I determine should not be construed as limiting the Crown's obligations under the Court's decisions in any way, and in this respect it should be noted that my determination does not prescribe a particular plan of harvesting activity within TFL 53. It is also independent of any decisions by the Minister of Forests and Range with respect to subsequent allocation of wood supply.

Overall, in making AAC determinations, I am mindful of my obligation as steward of the forest land of British Columbia, of the mandate of the Ministry of Forests and Range as set out in Section 4 of the *Ministry of Forests Act*, and of my responsibilities under the *Forest Practices Code of British Columbia Act* (the Code) and under the *Forest and Range Practices Act*.

Because the new regulations of the *Forest and Range Practices Act* are designed to maintain the integrity of British Columbia's forest stewardship under responsible forest practices, it is not expected that the implementation of the legislative changes will significantly affect current timber supply projections made using the Code as a basis for the definition of current practice.

The role of the base case

In considering the factors required under Section 8 of the *Forest Act* to be addressed in this AAC determination, I am assisted by timber supply forecasts provided to me by the licensee as part of the BCFS Timber Supply Review program.

For each AAC determination a timber supply analysis is carried out using an information package including data and information from three categories: land base inventory, timber growth and yield, and management practices. Using this set of data and a computer model, a series of timber supply forecasts is produced. These include sensitivity analyses to assess the timber supply effects of uncertainties or changes in various assumptions around a baseline option, normally referred to as the 'base case' forecast.

The base case forecast may incorporate information about which there is some uncertainty. Its validity, as with all the other forecasts provided, depends on the reliability of the data and assumptions incorporated into the computer model used to generate it. Therefore, much of what follows in the considerations outlined below is an examination of the degree to which all the assumptions made in generating the base case forecast are realistic and current, and the degree to which its predictions of timber supply must be adjusted, if necessary, to more properly reflect the current situation.

These adjustments are made on the basis of informed judgment, using current information available about forest management, which may well have changed since the original information package was assembled. Forest management data are particularly subject to change during periods of legislative or regulatory change, or during the implementation of new policies, procedures, guidelines or plans.

Thus it is important to remember, in reviewing the considerations which lead to the AAC determination, that while the timber supply analysis with which I am provided is integral to those considerations, the AAC determination itself is not a calculation but a synthesis of judgment and analysis in which numerous risks and uncertainties are weighed. Depending upon the outcome of these considerations, the AAC determined may or may not coincide with the base case forecast. Judgments that may in part be based on uncertain information are essentially qualitative in nature and, as such, subject to an element of risk. Consequently, once an AAC has been determined, no additional precision or validation may be gained by attempting a computer analysis of the combined considerations to confirm the exact AAC determined.

Timber supply analysis

The timber supply analysis for TFL 53 was prepared by Industrial Forestry Service Limited under the direction of licensee staff. The Forest Stand Simulation Model (FSSIM) version 3.0 was used for the timber supply analysis. A newer version of this model is used by the BCFS for performing its timber supply analyses. Based on my staff's experience examining results from this model, I am satisfied that it is capable of providing a reasonable projection of timber supply.

The MPB infestation on TFL 53 is an extra-ordinary factor which affects the selection of harvest flow as well as many other modelling assumptions in the base case. The licensee noted that the MPB infestation is the immediate overriding issue on the TFL.

The starting year for the harvest forecasts contained in the timber supply analysis was 2003 and the harvest was projected annually for the first 100 years of the harvest forecast. After that, it was projected by decade. In the base case and the forecasts of alternative harvest flows, the first year's harvest was intended to be set at the actual harvest in 2003, estimated by the licensee to be 363 000 cubic metres. The analyst inadvertently set this level at 263 000 cubic metres, the level that was to be directed at stands where pine predominates. After the first year harvest in the base case, a level of 500 000 cubic metres per year (the current AAC) was projected for five years before declining to 226 000 cubic metres per year. This level was maintained for 44 years, after which the harvest level increased to 310 000 cubic metres per year. The long-term level of 329 000 cubic metres per year was reached in 190 years.

I am aware that the actual harvest in 2003 in fact totalled about 400 000 cubic metres, and therefore the volume depletion for that year was underestimated by about 140 000 cubic metres.

The suggested volume of 100 000 cubic metres to be harvested annually from non-pine-leading stands as part of the current AAC for TFL 53 was reflected in the base case assumptions.

Assumptions in the base case that were specific to management for MPB included the following:

- No adjacency constraints for the first seven years;
- No harvesting of stands to which AAC was attributed in pre-MPB determinations, namely residual balsam-leading stands resulting from historic IU logging and deciduous-leading stands for the first seven years;
- A target of 100 000 cubic metres per year harvested from non-pine-leading stands;
- Non-recoverable losses of 600 cubic metres per year;
- Prioritization on high and moderate risk pine-leading stands.
- A shelf-life of 4 years placed on beetle-killed trees, after which all the pine trees were assumed to be killed; the volume was assumed to be unsalvageable, and no longer contributed to timber supply after the shelf-life period elapsed;
- A ten-year regeneration delay placed on unharvested, beetle-killed stands, and natural regeneration assumed.

My considerations of these specific assumptions are described where applicable in this document.

The licensee is proposing a harvest level of 800 000 cubic metres per year, an increase of 60 percent over the current AAC for the TFL.

After considering the information provided by the licensee, I requested some additional analysis be undertaken, and I have discussed the results of this analysis in my 'Reasons for decision'.

In the timber supply analysis, sensitivity analyses were provided to assess the risk to timber supply resulting from uncertainty in data assumptions and estimates, and these have assisted me in considering the factors leading to my determination.

As discussed and quantified throughout this rationale, and in consideration of the items described above, I am satisfied that the base case provides a suitable reference point from which to assess the timber supply for this determination.

Consideration of Factors as Required by Section 8 of the *Forest Act*

Section 8 (8)

In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a) the rate of timber production that may be sustained on the area, taking into account

(i) the composition of the forest and its expected rate of growth on the area

Land base contributing to timber harvesting

- general comments

The total area of TFL 53 as estimated from the inventory data is approximately 87 693 hectares, of which 79 839 hectares are considered potentially productive forest land.

As part of the process used to define the timber harvesting land base (i.e. the land base estimated to be economically and biologically available for harvesting), a series of deductions were made from the productive forest land base. These deductions account for the factors that effectively reduce the suitability or availability of the productive forest area for economic or ecological reasons. In timber supply analysis, assumptions, and if necessary, projections, must be made about these factors prior to quantifying the appropriate amount of area to be deducted from the productive forest in order to derive the timber harvesting land base.

After the deductions were applied, approximately 86 percent of the forested area or 68 644 hectares were considered to be available for timber harvesting.

I have considered all of the deductions applied in the derivation of the timber harvesting land base for TFL 53. I accept the assumptions applied in the analysis for non-forested areas, non-productive forest, non-commercial cover, deciduous stands, intermediate utilization (IU) balsam stands, inoperable/inaccessible areas, sites with low timber growing potential, environmentally sensitive areas, unmerchantable forest types, terrain stability, and existing as well as future roads, trails and landings. I will not discuss these factors further in this document.

Existing forest inventory

- general comments

I have reviewed the information regarding the forest cover inventory, species profile, the age class distribution, aggregation procedures and existing stand yields for stands on TFL 53. I am satisfied that there are no concerns regarding this information and I will not discuss my considerations further in this document.

Expected rate of growth

I have reviewed the information regarding the site index assumptions as well as the operational adjustment factors used in the analysis for TFL 53, and I identify no issues that would impact this determination.

- managed stand yields

In the 1999 AAC determination rationale for TFL 53, the deputy chief forester requested that the licensee monitor the managed stand yields, with particular regard to the yield associated with genetic gain and site productivity estimates, and how volumes projected in models meets actual volumes realized operationally.

The licensee notes in its management plan that it has been monitoring research developments in this area, and will continue to do so. The licensee indicates that over the term of Management Plan No. 4, it will continue to investigate methodologies to compare actual yields of managed stands to the predicted yield of the managed stands, and it also intends to implement a monitoring program.

I agree it is important to ensure that the yields assumed in the modelling are indeed reflective of operational volumes. I support the licensee's intention to monitor actual compared to predicted volumes in managed stands over the term of the management plan. The future performance of managed stands assumes much greater significance for mid- and longer-term timber supply in this beetle-impacted management unit. Any additional information that becomes available through monitoring can be incorporated into future determinations for TFL 53.

(ii) the expected time that it will take the forest to become re-established on the area following denudation

Expected time for re-establishment

I have reviewed the information regarding the assumptions made for regeneration delay, current not-satisfactorily-restocked areas, and impediments to prompt regeneration in the analysis for TFL 53, and I identify no issues that would impact this determination.

- backlog not-satisfactorily-restocked areas

In the 1999 determination, the deputy chief forester requested that the licensee obtain better information on the forest cover for backlog NSR areas.

The licensee followed up on this instruction over the term of Management Plan No. 3. It notes in Management Plan No. 4 that backlog NSR areas were surveyed to update their status and forest cover information. The results of the review were included in the data used for the current timber supply analysis.

District staff indicate that the analysis assumptions for backlog NSR reflect operational conditions.

I have reviewed the information, and acknowledge the licensee's efforts to improve the available information about the backlog NSR on the TFL. I am satisfied that there are no issues that would impact this determination, and I make no adjustments.

(ii) silvicultural treatments to be applied to the area:

Silvicultural treatments

I have reviewed the information regarding the assumptions made for regeneration and immature stand management history in the analysis for TFL 53, and I identify no issues that would impact this determination.

I have also reviewed the information regarding incremental silviculture (juvenile spacing, fertilization), stand conversion, silvicultural systems and commercial thinning and have identified no issues that would impact this determination.

Thus I will not discuss my considerations further in this document.

(iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area:

Timber harvesting

I have reviewed the information regarding the utilization standards and decay, waste and breakage assumptions in the analysis for TFL 53, and I identify no issues that would impact this determination. I will not discuss my considerations further in this document.

(v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production:

Integrated resource management objectives

I have reviewed the information regarding the recreation, range, cultural heritage resources, riparian habitat, water quality, green-up, adjacency and stand level biodiversity assumptions in the analysis for TFL 53, and I identify no issues that would impact this determination.

- visually sensitive areas

Careful management of scenic areas near recreational sites, highways and lakes is an important IRM objective. The Forest Practices Code enables the management of visual resources by providing for scenic areas to be identified and made known, and by providing for the establishment of visual quality objectives (VQOs). To achieve objectives for managing visual resources, visual landscape inventories are carried out to identify, classify and record those areas of the landscape that are visually sensitive.

The licensee modelled management for visual quality using the known VQOs based on the 1998 visual landscape inventory, and assuming maximum disturbance levels. Visually sensitive areas cover 4.2 percent of the timber harvesting land base on TFL 53. The management objectives were applied throughout the forecast period, including the higher short-term harvest level that was modelled to reflect management for the MPB epidemic.

The BCFS regional landscape forester recently completed a new visual landscape inventory in which the amount of area in each of the partial retention, modification and

maximum modification visual quality classes was increased. Given that the licensee does not agree with the classification in the inventory, it and the regional staff are currently working together to come to an agreement. At the request of BCFS staff, however, the licensee completed a sensitivity analysis to evaluate the effect of the revised classification on timber supply. The sensitivity analysis, in which the recommended visual quality classes for these areas were applied, indicated that the new classification would result in reductions in the short-, mid- and long-term harvest levels of 1.3, .6 and .3 percent as compared to the base case.

District staff indicate that the assumptions applied in the base case reflect current practice on the TFL.

I am aware that licensee and regional staff are currently in disagreement regarding the management for visual quality on TFL 53, and that the licensee used the 1998 visual landscape inventory, rather than the newer one recommended by the NIFR. As mentioned above, in the shorter term, I find that the MPB epidemic is the overwhelming consideration on TFL 53. In consideration of this, and the results of the sensitivity analysis which suggest a small reduction in the short-term harvest level, I accept the assumptions as modelled in the base case, and make no adjustments.

Over the term of this determination, I request that the BCFS and licensee staff work together to reach an agreement on appropriate visual quality management, and ensure that this information is incorporated into future analyses.

- wildlife habitat

The Prince George Land and Resource Management Plan, discussed under *land and resource management plans*, identifies some specific wildlife habitat requirements for TFL 53, including the maintenance of moose, marten and grizzly bear habitat. There are currently no ungulate winter ranges identified on TFL 53.

The Identified Wildlife Management Strategy (IWMS) Version 2004 contained an updated list of identified wildlife, updated species accounts and updated procedures for implementing the IWMS. The species that may require further consideration on TFL 53, which is located in the Quesnel Lowland and Bowron Valley ecosections, include the following: long-billed curlew, short-eared owl, wolverine and grizzly.

Identified Wildlife are managed through the establishment of wildlife habitat areas (WHAs) and the implementation of general wildlife measures (GWMs) and wildlife habitat area objectives, or through other management practices specified in strategic or landscape-level plans.

The objectives or general wildlife measures may preclude or constrain timber harvesting depending on the requirements of individual identified wildlife species or communities. No WHAs have been established in the TFL. The licensee indicates that there are no known wildlife habitat features that require specific area deductions in the TFL. Management for wildlife outlined in the Prince George LRMP – such as for the moose, marten and grizzly bear – is expected by the licensee to be accounted for through meeting various other forest cover objectives, such as those for landscape level biodiversity and

riparian habitat. The licensee also notes that its biodiversity management plan includes strategies to manage for the species identified in the Prince George LRMP.

Government policy under the Code, which continues under FRPA, is to limit the timber supply impact of the IWMS to one percent. Operational policy has been to initially allocate the one percent impact equally to each forest district with acknowledgement that this approach can be refined if warranted.

In the 2004 timber supply analysis, the licensee excluded one percent of the timber harvesting land base (approximately 700 hectares) to account for identified wildlife management strategies and other possible wildlife habitat reductions, such as for ungulate winter range.

I am aware that the licensee has explicitly excluded one percent of the timber harvesting land base to account for future implications of identified wildlife. I expect that a full one percent impact may be in excess of what will eventually be required on the TFL, given the nature of the terrain, and the absence of species such as caribou on the TFL. However, given the overriding nature of the MPB epidemic, I make no adjustments for this determination.

I request that BCFS and Ministry of Environment wildlife staff work together with the licensee to determine the implications of the IWMS for TFL 53, so that future determinations can incorporate the best information in this regard.

- landscape level biodiversity

Achieving landscape-level biodiversity objectives involves maintaining forests with a variety of patch sizes, seral stages, and forest stand attributes and structures, across a variety of ecosystems and landscapes. Managing for biodiversity is based in part on the principle that maintaining these conditions—together with connectivity of ecosystems and the maintenance of forested areas of sufficient size to maintain forest interior habitat conditions—will provide for the habitat needs of most forest and range organisms.

In the order establishing provincial non-spatial old growth objectives, TFL 53 was identified as the Dunkley landscape unit, and assigned a low biodiversity emphasis (BEO). In the analysis the requirements for old seral forest were applied at the variant level initially using one third of the percentage retention values as is allowed for low emphasis. Full old seral retention was phased in over three rotations. The retention objectives were required to be met over the entire planning horizon.

The licensee indicates that it has delineated draft old growth management areas (OGMAs) and provided a sensitivity analysis in which these areas were excluded from the timber harvesting land base. The results indicate that the eventual establishment of the OGMAs may result in a one percent impact to the timber supply over the forecast period.

I have considered the information regarding the assumptions applied for landscape-level biodiversity objectives in the base case, and I accept them as modelled, with the exception of the assumptions around natural disturbance levels in the non-timber harvesting land base (discussed below).

I have two further observations. First, I note that the sensitivity analysis in which the implications of OGMA placement were evaluated suggests that the future establishment of OGMAs on TFL 53 may result in a small impact to timber supply. Second, I am aware that policy for meeting old growth objectives in low BEO areas allows for the application of the one-third drawdown in cases where timber supply would be adversely affected if the full old seral requirements were to be met immediately. Sensitivity analysis conducted in the 2004 analysis indicated that mid-term timber supply would be impacted if full old seral requirements were to be met immediately.

In light of these observations, I request that the licensee monitor the availability of old growth forest relative to the targeted objectives, and develop a strategy to manage for old growth as necessary in the wake of the MPB epidemic. Additionally, as OGMAs are established on the TFL, the timber supply implications of their establishment can be incorporated into future analyses.

- natural disturbance in the non-timber harvesting land base

Forests outside the timber harvesting land base contribute to the achievement of landscape level biodiversity objectives. While harvesting does not occur in these forests, natural agents such as fire, insects or wind create disturbances and affect the age class distribution of stands. An important aspect of timber supply modeling is to reflect operational conditions in these forests, so that the assumed contribution to old or other seral objectives is consistent with what would be available operationally. Natural disturbances in the non-timber harvesting land base were not factored into the previous timber supply analysis, and in the 1999 determination the deputy chief forester stated that 'the ageing of stands in inoperable areas is a provincial issue that requires an assessment of how to best model disturbance patterns and succession in areas outside the timber harvesting land base'. Since that time, several different methodologies have been developed and used in timber supply analyses to reflect natural disturbance regimes.

In the 2004 analysis for TFL 53, no level of disturbance in the non-timber harvesting land base was assumed, and the forests outside the timber harvesting land base were allowed to age continuously. It is understood that this does not reflect what will happen in reality, particularly given the mountain pine beetle epidemic and its potential effect on the lodgepole pine stands outside the timber harvesting land base.

The implications of assuming that the forest ages continuously outside the timber harvesting land base are related to the capability of these forests to contribute to landscape-level biodiversity and other forest cover objectives. It is likely that in the analysis a larger area of forest in the non-timber harvesting land base was assumed to be available as old forest than will be in reality.

However, I note that a high proportion of the productive forest on TFL 53 is timber harvesting land base. Based on this, and from reviewing results of analyses in other management units in the province, I am satisfied that assuming an appropriate level of endemic disturbance in the non-timber harvesting land is unlikely to significantly impact timber supply projections for TFL 53. Further, I again note the overwhelming influence of the current MPB epidemic on this determination. I make no adjustments on this account; however, I request that the licensee collect data so that an appropriate level of

disturbance, and the implications of this disturbance on the contribution of the non-timber harvesting land base forests to old seral objectives and other forest cover requirements can be incorporated in the next analysis for TFL 53.

- large scale salvage and stand retention

The size of openings and the retention of stands within and adjacent to openings is a matter of significant consideration given the current mountain pine beetle epidemic. The extent of the damage caused by the epidemic has raised some forest stewardship considerations that were not previously contemplated.

On TFL 53, the focus of harvesting operations in lodgepole pine has shifted from efforts to control the epidemic to efforts to salvage as much of the wood volume as possible before time and climatic conditions render it unusable economically.

In the context of salvage harvesting, it is important to understand the ecological implications of large-scale openings and ensure that salvaging the economic values does not unduly impact other resource values.

Salvaging of affected pine stands results in large openings, much larger than historically contemplated under current policy. Research has thus been conducted into the implications of such openings for forest stewardship. A document '*Forest Stewardship in the Context of Large-Scale Salvage Operations: An Interpretation Paper*' was prepared in 2004 as an accompaniment to the Lakes, Prince George and Quesnel TSA AAC determinations, in order to provide some guidance on the matter.

This paper provided the following recommendations:

- That little to no salvage harvesting occur in the non-timber harvesting land base;
- That little to no harvesting should occur in riparian management areas and riparian reserve zones;
- That little change should occur in the manner of which wildlife tree patches, wildlife habitat areas are left;
- That salvage harvesting should focus on the areas with the highest level of infestation and the highest proportion of pine; and
- That large openings (greater than 1000 hectares in size) could be appropriate, but only if the unharvested area within these openings increases proportionally with the larger opening size (e.g., up to 25 percent of a 1000 hectare opening should be retained as unharvested).

It is suggested that good practices in order to meet these recommendations for both landscape-level and stand-level retention include planning as far into the future as possible, and in a spatially explicit manner, the placement of retention and harvest areas, with consideration of the other values. At the stand level, it is recommended that retained areas where possible contain live trees and of species other than pine; that the retention area be retained for a rotation; that operable non-pine stands be left available in order to provide for mid-term harvest opportunities; and that the amount of stand retention vary with the size of cutblock, as indicated in the table below:

Table 1. Recommended proportion of stand level retention based on opening size.

Opening Size	Percent of Opening Un-harvested/retained
<50 ha	10%
50 – 250 ha	10 – 15 %
250 – 1000 ha	15 – 25 %
> 1000 ha	> 25 %

The licensee states that the level of retention currently practiced on TFL 53 is adequate to meet biodiversity needs. It does not intend to explicitly retain the level recommended in the research paper cited above and further believes that the 10 to 12 percent retained under normal conditions for a variety of purposes (riparian reserves, etc.) is adequate. However, I am aware that the licensee does retain additional patches of forest predominated by non-pine species within cutblocks affected by the MPB. The licensee intends to retain these areas for future harvest.

I consider that these non-pine patches also contribute to the retention objectives, but may not contribute for as long as recommended in the current research findings.

In accordance with the current research on this matter, I have some specific requests of the licensee, which I will discuss in 'Reasons for decision'.

(vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber;

Other Information

- harvest sequencing

Harvest rules are used in timber supply analysis to define parameters to direct the model—when presented with a number of stands meeting the criteria for harvest—as to which stands should be selected first for harvest. Setting an absolute oldest first harvest rule directs the model to harvest first in those stands with the oldest ages. A relative oldest first harvest rule, on the other hand, would target those stands furthest past their minimum harvestable ages as a first priority.

The licensee is currently concentrating on salvaging from mountain pine beetle-infested stands. The licensee indicates it may harvest a small amount of healthy older spruce stands, in order to meet log profile requirements for the mill and customer demands.

In the 2004 analysis, in order to reflect the implications of harvesting affected stands in the wake of the MPB epidemic, the licensee applied a random harvest rule. In addition, for the first seven years of the planning horizon, first harvest priority was placed on pure pine stands and second harvest priority was placed on mixed-wood stands where pine predominates. Following the expected end of the epidemic, priority was placed on the following stands: pine-leading stands over 140 years of age, spruce and balsam stands

over 180 years of age, Douglas-fir stands over 150 years of age, and aspen stands over 100 years of age (in order to reflect their practice of targeting oldest stands first over the longer term).

In all of the forecasts provided in the analysis, a volume of 100 000 cubic metres per year was targeted for harvest from non-pine-leading stands during the modelled uplift period (4 to 6 years).

In addition, after the uplift period elapsed, a target was set to harvest both balsam IU stands and deciduous stands, equivalent to the volume attributed to these stands in the 1999 determination.

NIFR staff expressed concern over the proportion of non-pine species in the pine analysis units and subject to harvest in the modelling, and expressed a corresponding concern over the proportion of the harvest volume operationally that is attributable to non-pine species. Staff in particular drew attention to the 2004 harvest year, in which non-pine species contributed 51 percent of the harvested volume.

Although some of the pine analysis units in the modelling contained a high proportion of pine (over 80 percent), others included a significant proportion of other species. Licensee staff indicate that in current practice, the harvesting of affected pine stands includes, in some cases, species other than pine, which can contribute on average 30 percent of the stand volume. The licensee further noted that in the 2004 harvest year, harvesting was focussed on the stands that were attacked first, which tend to be those with larger diameters and therefore also the most valuable. These stands also tend to have a relatively high proportion of non-pine species. The licensee indicates that as the average size of trees in targeted pine stands declines, the proportion of pine volume harvested operationally will be higher.

I am aware of the licensee's assessment that the pine on TFL 53 has experienced between 80 and 90 percent mortality, and concur with its desire to harvest affected stands as soon as possible. I note the importance of ensuring a higher harvest level is set in full consideration of the volume available in its support, and that the harvest is appropriately targeted at mountain pine beetle attacked stands. Given the assumption in the base case to target 100 000 cubic metres of non-pine-leading stands, the harvest of the affected pine stands was not targeted to the extent that I consider necessary to ensure maximum salvage of killed pine. From review of the information, I consider the base case assumptions allowed for an excessive harvest of volume from species other than pine. I believe that the incidental harvest of other species while concentrating harvest on the high proportion pine stands will still provide the licensee with enough non-pine volume to meet their stated mill and market requirements. In order to fully evaluate the timber supply implications of concentrating the harvest more rapidly into pine stands than was assumed in the base case, I requested some additional analysis from BCFS staff. The results of this analysis and my considerations will be discussed further under 'Reasons for decision'.

- *twenty-year plan*

The purpose of the twenty-year plan is to illustrate if the harvest volume projected in the base case over the next 20 years can be appropriately configured in specific areas on the landscape.

The licensee prepared a twenty-year plan which illustrated that the harvest levels projected in the base case could be attained over the twenty year period.

I have reviewed the information regarding the twenty-year plan for TFL 53, and note that it provides information to indicate the proposed harvest level can be supported spatially on the timber harvesting land base.

- partitioned component of the harvest

I am aware that prior to the 2003 beetle uplift determination, 2000 cubic metres of the AAC for TFL 53 was attributed to aspen-leading stands, and 4100 cubic metres to residual balsam intermediate utilization (IU) stands.

In the 1999 AAC determination rationale for TFL 53, the deputy chief forester requested that the harvesting performance in aspen-coniferous and balsam IU stands be monitored. The licensee has provided information to follow up on that request in Management Plan No. 4, noting that up until the fourth year of the cut control period (December 16, 2002), the volume from deciduous-leading stands was 9175 cubic metres or 115 percent of the attributed volume, and the volume from balsam IU stands was 16 200 cubic metres or 99 percent of the attributed volume. The licensee further notes that it subsequently suspended its harvest in both stand types to focus on the escalating MPB infestation.

In the May 2003 determination, the deputy chief forester noted that the licensee was performing well in the partitions, and chose not to attribute volume to either stand type, in order to allow the licensee to direct the harvest to infested pine stands.

The licensee intends to maintain a small component of deciduous stands on the TFL to address biodiversity objectives. NIFR staff have expressed concern with respect to the magnitude of deciduous area the licensee is assuming will be converted to coniferous stands. District staff express no concerns regarding the assumptions in the analysis, and note that the deciduous partition could be reconsidered once the MPB epidemic is under control.

Having considered the information, I note that the licensee met its requirements prior to the MPB infestation. The choice to focus on MPB infested stands is a sound one from a management and forest stewardship perspective. I am satisfied that it is appropriate at this time to not attribute a portion of the AAC to either aspen-conifer or balsam IU stands. Any further attribution of the AAC can be considered again in future determinations, once the need to focus on pine salvage has passed.

- land and resource management plans

The Prince George Land and Resource Management Plan (LRMP) was approved in March 1999 by the Ministers of Forests, Energy and Mines, and Environment, Lands and Parks. The licensee participated as a member of the LRMP planning table. TFL 53 is

one draft landscape unit and is classified as an Enhanced Resource Management Zone (RMZ # 24) in the approved Prince George LRMP. The management intent for this zone is to develop and enhance the timber resource consistent with the objectives of the RMZ. In addition to the general management direction described in section 2.2 of the plan, objectives include fisheries (*'maintain the physical and biological diversity of fish habitats'*), grizzly bear, marten, moose (*'manage [grizzly bear/marten/moose habitat] to provide opportunity for population levels to be maintained'*), Douglas-fir (*maintain Douglas-fir component*), and timber (*'Optimize timber growth and implement silviculture strategies to produce a broad spectrum of forest products'*).

The licensee indicates that it plans its operations to be consistent with the direction in the LRMP. I have reviewed the information regarding the Prince George LRMP, and I am satisfied that there are no issues affecting this determination.

First Nations

The asserted traditional territories of the Red Bluff Band (Lhtako Dene Nation) and Lheidli T'enneh First Nation include portions of TFL 53.

Aboriginal interests that may exist on the TFL include the continued ability to hunt, fish, and gather plants for food and medicinal purposes, and the maintenance of a cultural and spiritual link to the land. Such interests have been indicated in traditional use studies and in a cultural heritage overview prepared for the Northern Interior Forest Region.

The Lheidli T'enneh has about 300 registered members. Its reserves are located along the Fraser and Nechako Rivers, near Prince George. The main community is on Fort George (Shelley) Indian Reserve #2, which is split by the Fraser River and referred to as North Shelley and South Shelley, 16 kilometres northeast of Prince George. There are a total of four reserves covering 686.5 hectares.

On June 26, 2003 the Lheidli Tenneh signed an Agreement-in-Principle (AIP) with the federal and provincial governments as part of the treaty process. The Lheidli T'enneh is now in Stage 5 of the six-stage treaty process, negotiating a final agreement.

I have reviewed the AIP document, and note that for the most part, its provisions do not apply to TFL 53. To the extent that the rights identified in the AIP to harvest fish, wildlife and migratory birds may cover areas in TFL 53, I note that provisions exist under the Forest Practices Code and the Forest and Range Practices Act to protect wildlife and other resources. If areas or rights are identified in the final agreement that would affect the land base or management on TFL 53, they can be considered in future AAC determinations.

The Red Bluff Band has about 140 registered members. The band has a community located ½ kilometre outside of Quesnel off Highway 97 on the Quesnel Indian Reserve #1, with four reserves covering 682.7 hectares. The Band is affiliated with the Carrier-Chilcotin Tribal Council. It has not lodged a statement of intent with the British Columbia Treaty Commission. Government representatives are working to build relationships with the Carrier-Chilcotin Tribal Council outside of the British Columbia Treaty Commission six-stage treaty process.

The following paragraphs summarize the consultation process undertaken for Management Plan No. 4 and the AAC determination.

- Management Plan No. 4 consultation process

On September 5, 2003 the licensee sent the First Nations a letter initiating its information sharing process for Management Plan No. 4. In the letter the licensee offered to meet with the First Nations to review the contents of the plan. No response was received from the First Nations.

On February 21, 2005 the NIFR sent a letter to the Red Bluff Band and the Lheidli T'enneh continuing the consultation process concerning Management Plan No. 4 for TFL 53. In the letter, the NIFR asked the First Nations to provide their input to the Prince George Forest District (PGFD). The letter included a copy of the management plan, a map of the TFL and a copy of the legislation pertaining to management plans.

On February 28, 2005 PGFD staff spoke with the chief of the Lheidli T'enneh about Management Plan No. 4. The chief had not reviewed the plan but offered some general comments. He indicated that licensees do not live up to their management plans due to the beetle infestation. He also indicated that if there is evidence of something culturally significant, the licensee should fulfill its obligations. He mentioned that if culturally modified trees are found, the rules must be followed, and near lakes archaeological impact assessments need to be completed. He indicated there is a lot of lithic scatter near the lakes and this was well used. Finally he indicated the management plan needed to be consistent with the Willow River watershed plan prepared by the Lheidli T'enneh.

I have read and approved Management Plan No. 4 for the TFL and note that the licensee intends to follow its strategies as detailed in the plan. In general, these are to maintain, manage or enhance forest and non-forest resources. The timber supply analysis assumptions are consistent with the strategies in the plan with one exception. For the MPB salvage period the licensee did not apply the adjacency constraint. This allows for harvesting of larger, contiguous areas affected by the beetle. The strategies include conducting archeological impact assessments and incorporating into site plans site-specific management practices as recommended in the assessments. I note that the Lheidli T'enneh and the province have not reached agreement on whether or how to implement the Willow River Watershed Plan. Therefore the plan has not been used to guide forest management, and hence the timber supply analysis does not incorporate assumptions to represent elements of the plan. If all or parts of the Willow River plan are adopted by all parties and incorporated into management practices on TFL 53, these practices will be accounted for in future determinations.

- AAC determination consultation process

On January 13, 2005, the licensee sent a covering letter, the information package and the timber supply analysis to the Lheidli T'enneh and the Red Bluff Band. The licensee indicated in its covering letter that the MPB epidemic was the single largest impact

examined in the analysis. It extended an invitation to meet with the First Nations to explain the information or answer any questions. No responses were received from the First Nations.

On January 19, 2005, PGFD staff sent a letter to the First Nations, indicating that the AAC determination process was underway, and noting both that the licensee had sent them the information package and analysis, and that comments should be forwarded to the licensee and copied to the district. PGFD staff also offered to meet with the First Nations to explain the information and answer any questions.

On January 25, 2005, district staff left voicemail for the Lheidli T'enneh, asking if they had received the information package and analysis. Staff attempted to similarly contact the Red Bluff Band on the 26 and 27 of January, but no answer was received, and no voice mail was available. On February 17, 2005 staff left a detailed voice mail for the Lheidli T'enneh, asking if the First Nation intended to provide comment on the AAC determination. PGFD staff sent a letter to the Red Bluff Band on February 18, 2005 asking it to forward to the district any comments regarding its aboriginal interests and how they might be affected by the AAC determination.

The 60-day consultation process for the TFL 53 AAC determination ended on March 18, 2005 with no comments received from either First Nation.

I have considered the information presented regarding consultation with First Nations conducted as part of both Management Plan No. 4 and the AAC determination. I note that no concerns specific enough to factor into the determination were identified by either First Nation during these processes.

I am aware that the licensee regularly sends referrals regarding proposed Forest Development Plans (FDP) and FDP amendments to both First Nations depending on where cut blocks are proposed within the TFL. In previous contact with BCFS staff, local First Nations have indicated that employment of band members and economic benefit from forestry activities are their priorities. I understand the licensee has considered applications by local First Nations to work on silviculture contracts on the TFL and as a result has issued a contract to the Lheidli T'enneh. However in recent years the First Nations have not contacted the licensee expressing interest in such work.

I believe that information sharing between the licensee and First Nations related to operational planning and aboriginal interests offers a good opportunity to locate, design and time harvesting operations to protect habitat, riparian areas and food and plant sites as much as possible within the constraints presented by attempts to mitigate the impact of the MPB epidemic.

At this time, the nature, scope, and geographic location of potential aboriginal rights and title within TFL 53 remain inconclusive. Should specific information about aboriginal interests become available during the term of this determination, I will consider it in the next AAC determination. I encourage continued information sharing and consultation with First Nations on operational activities, as is normal practice on the TFL, to enable

design and timing of forest operations to minimize and hopefully eliminate negative impacts on First Nations' interests.

As I have noted in my *Guiding principles*, the AAC that I determine should not in any way be construed as limiting the Crown's obligations as described in court decisions with respect to aboriginal rights and title. In addition, the AAC that I determine does not prescribe any particular plan of harvesting activity within TFL 53 by requiring any particular area to be harvested or not harvested.

As I make my AAC determination, I am mindful of the responsibility of other statutory decision-makers to administer the determined AAC in a manner consistent with other legislation and with relevant decisions of the courts respecting the aboriginal interests of First Nations.

(b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area;

Alternative harvest rates

As part of the timber supply analysis, the licensee provided several different alternative harvest flows. This included an alternative harvest flow in which the harvest level was set at 800 000 cubic metres per year after the first year of the forecast, for a four-year period. The forecast then declined to a mid-term level of 219 000 cubic metres per year, very similar to that of the base case. In this alternative, the pine volume was assumed to be no longer salvageable after the shelf-life period (4 years), and the killed pine volume no longer contributed to timber supply. I am aware that increasing the short-term harvest level by the amount tested in the alternative flow had very little impact on the mid-term or long-term harvest levels.

I have considered the information provided in the alternative flow, and it has informed my decision.

Community dependence

The licensee operates a sawmill in Strathnaver. Recently, a new small wood mill was constructed adjacent to the original saw mill. The licensee's total annual milling capacity is now 1.6 million cubic metres. The current harvest from TFL 53 forms a component of the supply for these mills.

Approximately half of the mill employees live in Hixon, with the remainder living in Quesnel or Prince George.

I have considered the information regarding the dependence of local communities on the volume harvested on TFL 53. In particular, I am aware of the implications of higher harvest rates in the shorter term followed by a decline after the beetle salvage to a much lower mid-term harvest level. I am aware that there may be implications for the communities when the harvest rate is decreased. Although the volume harvested from

TFL 53 forms but a component of the volume supplying the mill in Strathnaver, there will still be an employment impact, in particular when considered in conjunction with the declining harvest rates that will also occur in surrounding management units. However, in the case of harvest from the beetle epidemic, I am mindful that the shelf life of the logs is a critical variable. Research indicates that the volume of wood in the dead pine trees has a finite time period in which it can be harvested, before the wood is no longer of value for specified end uses. If it were possible to stretch the harvest of the killed pine over a much longer time frame, such as well into the mid term, then this would be desirable. However, in the interests of salvaging as much of the volume as possible while still ensuring that the disturbance pattern on the landscape is biologically supportable, the harvest flow on TFL 53 will have to be initially large.

I am aware that the licensee for TFL 53 currently purchases the bulk of the volume to meet its milling requirements on the market, including from private sources such as woodlots, and that some of these private sources have also had AAC increases to address the MPB epidemic. I acknowledge that increasing the AAC for the TFL in this determination will have implications overall to the supply dynamics given the effect of the epidemic across all management units in the area.

Difference between AAC and actual harvest

I am aware that the licensee has historically harvested its full AAC. Since the determination in May 2003, in which the AAC was increased to 500 000 cubic metres to initially address the MPB epidemic, it has also been able to meet the AAC.

In this determination I have considered an appropriate harvest level to allow the licensee to salvage volume affected by mountain pine beetle prior to the loss of merchantability of the volume.

(d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia; and

Minister's letters and memorandum

The Minister has expressed the economic and social objectives of the Crown for the province in two documents to the chief forester—a letter dated July 28, 1994 (attached as Appendix 3), and a memorandum dated February 26, 1996 (attached as Appendix 4).

This letter and memorandum provide a government view on forest stewardship, a stable timber supply, and allowance of time for communities to adjust to harvest-level changes in a managed transition from old-growth to second-growth forests, so as to provide for community stability.

The Minister stated in his letter of July 28, 1994, that "any decreases in allowable cut at this time should be no larger than are necessary to avoid compromising long-run sustainability." He placed particular emphasis on the importance of long-term community stability and the continued availability of good forest jobs. To this end, he asked that the chief forester consider the potential impacts on timber supply of commercial thinning and harvesting in previously uneconomical areas. To encourage this, the Minister suggested consideration of partitioned AACs.

I have reviewed the opportunities for commercial thinning and I am aware that the licensee for TFL 53 has no plans to include commercial thinning in its operations in the near future. Based on my review of the information, I am satisfied that commercial thinning has limited utility on TFL 53 at the present time.

I have also considered the information relevant to partitioning the harvest, as discussed earlier under 'Partitioned component of the harvest'.

I have further considered the Minister's letter in relation to the challenge of utilizing a significant quantity of dead pine timber before its shelf life expires. The 80 to 90 percent current pine mortality combined with an estimated 4-year shelf life (from green attack stage) provides a limited period of time to effect utilization, and so the harvest levels must be at relatively high levels over this period. However, a significant decline will be necessary following the uplift to assure long run resource sustainability. I expect that a further AAC uplift can be readily processed by the licensee's Strathnaver mill, which will rely more heavily on its own TFL uplift wood for a limited time, before returning to other suppliers. In this respect, I expect any additional uplift to have a limited effect on mill employment, but harvest-related local employment will increase and then decrease.

The Minister's February 26, 1996 memorandum addressed the effects of visual resource management on timber supply. It asked that pre-Code constraints applied to timber supply in order to meet VQOs be re-examined when determining AACs in order to ensure they do not unreasonably restrict timber supply. I have reviewed the information regarding the management for and modelling of visuals on TFL 53 and I am satisfied that the analysis has appropriately reflected current practices on the TFL.

Local objectives

The Minister's letter of July 28, 1994, states that the chief forester should consider important social and economic objectives that may be derived from the public input in the timber supply review where these are consistent with government's broader objectives.

The licensee indicates that it actively solicited public input on Management Plan No. 4. No input was received.

In reviewing this information, I am satisfied that the licensee has carried out its public involvement obligations satisfactorily and I have no concerns for this determination.

(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

Unsalvaged losses

The licensee reviewed disturbance history on the inventory file to determine the level of unsalvaged losses occurring over the last 11 years from wildfires, insects and wind. The estimated annual losses based on this review was 600 cubic metres. This does not include losses resulting from the MPB epidemic. These were accounted for using a different method as described below under 'Mountain pine beetle epidemic'.

The licensee stated in its information package that it makes an outstanding effort each year to minimize unsalvaged losses. District staff are satisfied with the estimates of losses provided by the licensee and modelled in the analysis.

I have considered this information in the context of the additional methodology used to reflect the MPB epidemic, and I am satisfied that the modelling of unsalvaged losses adequately reflects the historical pattern on the TFL.

Spruce Beetle

District and licensee staff note that spruce beetle is present on TFL 53, and some salvage of affected spruce stands is necessary. I am aware of this and do not believe that the volume of wood associated with these management activities is significant enough to affect this determination. Any changes in the occurrence of this pest can be incorporated into future determinations for TFL 53.

Mountain pine beetle epidemic

- biology of the mountain pine beetle

In this section is provided a brief description of the biology of the mountain pine beetle. A more detailed description can be found in the Forestry Canada publication entitled *Forest Insect and Disease Survey, Forest Pest Leaflet No. 76.*

The mountain pine beetle (MPB), *Dendroctonus ponderosae* Hopkins (*Coleoptera*: *Scolytidae*) is widely considered to be the most damaging of all the insects that attack lodgepole pine in western Canada. The insect is a small, cylindrical-shaped bark beetle.

Generally, the beetles fly during mid to late summer, seeking mature and overmature lodgepole pine trees. Upon locating a suitable host, females bore through the bark and start construction of an egg gallery in the sapwood and inner bark near the base of the tree. If the tree is young and growing vigorously, it is able to produce sufficient resin to flood the beetle out. Lodgepole pine trees around 80 years of age or older usually cannot produce enough resin to evict the beetle. If not evicted, the beetle emits a pheromone attractant that induces a mass attack of additional beetles that can overwhelm the host tree.

The beetle introduces fungi that produce blue stain in the sapwood of the tree. These fungi interrupt the flow of water to the crown of the tree, and reduce the production of resin. The brood over-winter as larvae and feed on the inner bark of the tree. Unless killed by very cold temperatures over the winter, or removed from the site by harvesting, the brood will emerge as adults during the next growing season and attack neighbouring susceptible host trees.

It is a combination of the fungi retarding water flow and beetle larvae eating the inner bark, interrupting the flow of nutrients, that kills the tree during the second growing season after initial or 'green-attack'. The tree's foliage turns red in the late spring following attack. This is called 'red-attack'. In subsequent years the dead standing tree will lose its needles. This final stage is called 'grey-attack'.

The MPB brood will be killed by early fall temperatures of -18° Celsius but can survive through temperatures to -37° during winter. However, several days of winter temperatures below -27° will kill a large portion of the population. Once the maturing larvae have resumed feeding in the spring, they again become very susceptible to freezing temperatures. Since the impact of low temperatures is moderated by snow insulation, the snow pack can also be a critical factor to beetle survival.

As mentioned earlier in this document, mountain pine beetles are part of the natural process in lodgepole pine ecosystems. However, the current provincial outbreak has reached an unprecedented level in BC's history of recording such events. All lodgepole pine trees over 60 years of age are susceptible, and some younger stands are also now affected. The 2004 annual aerial overview survey indicates that over 7 million hectares of the province are affected. An immediate collapse to the beetle infestation does not appear likely since the recent trend of warm winters in the interior is expected to continue. BCFS staff project that by 2006, 50 percent of the lodgepole pine volume in the BC's interior will be affected. It is estimated that by 2013 over 80 percent of the Province's lodgepole pine will have been killed by the beetle.

This extreme pine mortality affects available timber supply and habitat, and associated economic and environmental values.

- the infestation on TFL 53

The licensee has been tracking the MPB infestation since the population surge was first noticed in 2000. The licensee used a combination of aerial survey sketch-mapping and ground surveys to identify and describe the extent of the infestation.

Unfortunately, as noted by the licensee in its timber supply analysis report, the beetle populations both within and surrounding the TFL are so large that control measures are no longer effective. TFL 53 is entirely surrounded by other severely affected management units, including the Quesnel and Prince George TSAs.

The licensee attempted to manage the infestation in its initial stages by locating and removing affected trees. It notes that it was able to handle the building epidemic through extensive control operations within the existing AAC of 239 500 cubic metres that had been determined during the period of Management Plan No. 3. However, despite the licensee's control measures, the severity of the infestation increased. In 2002, the licensee realized that the infestation could no longer be sufficiently managed within the context of the existing AAC, and requested an AAC uplift. In May, 2003, the deputy chief forester increased the AAC to 500 000 cubic metres on this account.

The licensee estimates that in 1999, before the MPB epidemic hit TFL 53, the total stand volume on the forested land base of TFL 53 at high risk to attack was approximately 4.7 million cubic metres. About 26 percent of the stands on the forested land base are dominated by lodgepole pine.

At the beginning of the harvest forecast, in January 2003, the total volume on the timber harvesting land base was approximately 12.6 million cubic metres. Of this, the pine volume at risk in moderate- and high-risk stands over 60 years old was estimated by the licensee to be approximately 3.6 million cubic metres. During the field tour of TFL 53 I attended in June of 2005, the licensee indicated that 80 to 90 percent of the pine was then attacked or dead and that by 2006 essentially 100 percent would be dead.

- wood quality implications

Since the previous determination for TFL 53 an extensive amount of work has been done to understand the implications of the mountain pine beetle damage to the quality of the wood provided by lodgepole pine.

Beetle-killed pine normally needs to be salvaged within a specific timeframe before volumes are no longer commercially usable for sawlogs. This time period is known as a 'shelf life'. Although data are limited, available research suggests that this shelf life ranges from 4 to 15 years and is dependent on several variables, including the climatic conditions around the tree such as temperature, oxygen and moisture, and the length of time before the dead tree falls down and contacts the ground.

The blue fungus that stains the sapwood of the tree affects the wood within the first year of attack from the beetle. The stain does not affect the structural properties of the wood, but due to a number of beliefs, some of the international markets are biased against blue stained wood. For example, literature suggests that the resistance of the Japanese market to blue stained wood is in part because some tropical stain fungi do indeed affect structural wood properties, even though the stain associated with mountain pine beetle

does not. A further issue relates to the Japanese language translation of mountain pine beetle to be similar to a particularly noxious native insect which vectors a highly destructive nematode. The result of these perceptions is a significant barrier to Japanese markets. This is of particular concern in the case of TFL 53, because the licensee depends on a market niche in Japan for a portion of its harvest. Blue stain also affects the value of the wood for any appearance grade wood products, such as furniture.

I am aware that if - as suggested by research - the blue stain fungus damage occurs within 9 months of initial attack, the pine volume on TFL 53 is already unsaleable on the Japanese market.

The licensee has developed markets in Japan, to which it supplies large-dimension spruce lumber. The licensee notes that maintaining that market requires it to supply its sawmill with a steady volume of large logs, obtained in part from TFL 53 and in larger part from the open log market.

Of concern is also that the wood deteriorates structurally with time after death of the tree. The sapwood, in part because of the blue stain fungus – dries quickly and the wood is prone to checking once the moisture content declines to below the fibre saturation point. The wood becomes increasingly difficult to process until it reaches a point where it is no longer economically viable to harvest.

The first issue mentioned above, that of blue stain, is one that is impossible to prevent given the severity and extent of the mountain pine beetle attack. It is necessary to focus on the second issue, that of trying to salvage the wood prior to it deteriorating to an extent where it is no longer suitable for harvest. For the pine stands on TFL 53, based on an assessment of the climatic conditions such as moisture and temperature, the licensee estimates that the shelf life for the trees (the amount of time that the wood will be harvestable following death of the tree) will be about 4 years. Given this limited shelf life, the licensee has expressed a need for as much increased AAC as possible to address the dead stands now. The four-year shelf life assumption was used in the analysis to determine the short-term harvest level necessary to salvage the pine volume.

Reasons for decision

I have considered the information discussed throughout this document, and I have reasoned as follows.

In the deputy chief forester's 2003 determination, he explicitly noted that he increased the AAC to 500 000 cubic metres to increase the opportunities for the licensee to salvage the pine volume damaged by the beetle. I am aware the new level represented a 109 percent increase in AAC for the TFL, compared to the previous level of 239 500 cubic metres.

For this determination, I am mindful that any further increase must be considered in the context of the pre-uplift AAC. However, as outlined in this document, the implications of the mountain pine beetle epidemic cannot be overstated. My own personal observations during an overview flight of the TFL in June 2005 indicate that virtually all the mature lodgepole pine on the TFL is now dead. The licensee indicates that pine less than 80 years of age has also been affected and I also observed this when I visited the TFL.

I am satisfied that an increase is necessary at this time to provide opportunity for the licensee to salvage as much value from the pine stands as possible before the wood is unsalvageable. However, some questions remain regarding the appropriate short-term harvest level, in particular given the concern I expressed earlier in this document regarding the high proportion of non-pine species harvested in the short-term in the base case and in the alternative harvest flows with elevated short-term harvest levels provided by the licensee. It is essential to ensure that the harvest level I determine can be attained with minimal implications for mid- or long-term timber supply and without unduly compromising objectives for the maintenance of biodiversity.

I am also aware that the initial harvest level in the base case was about 140 000 cubic metres less than what was actually harvested.

In order to fully inform my decision, I requested additional analysis be conducted by BCFS staff. In this analysis, the assumptions differing from those in the base case were as follows:

- All pine volume from stems over 60 years of age was assumed to be attacked in 2004;
- To ensure the 2003 starting inventory was depleted in accordance with actual harvest levels attained to date, harvest targets for 2003 and 2004 were based on the levels billed for cut control plus the grade 3 endemic harvest not billed to cut control for those two years. This corrected the 140 000 cubic metre difference noted above;
- For 2006 and 2007, no harvesting was allowed from non-pine-leading analysis units;
- Harvest for 2004 and 2005 included a request for harvest of non-pine volume that was the same as that harvested in 2003;
- Harvest targets for 2005, 2006 and 2007 were set as high as possible to harvest the remaining amount of pine in high-risk stands;
- Any pine volume in stands over 60 years of age not harvested by the end of 2007 (after the four-year shelf life since initial 'green' attack in 2004 had elapsed) was assumed to be lost, and the residual volume did not contribute to timber supply (estimated to be 1.2 million cubic metres of unsalvageable losses);

Results showed that a harvest level of 886 000 cubic metres could be attained for 2005, 2006 and 2007 before declining to a mid-term level of 219 000 cubic metres (close to that attained in the base case). The harvest level increased to 305 000 cubic metres per year in 50 years time, then again to 324 000 cubic metres per year in 190 years. These longer term levels are 10 000 cubic metres per year and 5000 cubic metres per year lower, respectively, than in the licensee's base case harvest forecast. There were no reductions in mid-term timber supply as a result of the increased short-term harvest level.

BCFS staff indicate that the residual pine volume not harvested (and lost) is likely the pine component of Douglas-fir and spruce-leading stands, covering about 10 000 hectares of the timber harvesting land base. These stands contain between 20 and 26 percent pine.

The area-weighted average pine component in the pine-leading analysis units was found to be 81 percent. As a result, over 100 000 cubic metres of volume from non-pine species were harvested each year in 2006 and 2007 in the model. Based on these results, I am

satisfied that adequate volume of non-pine species should be available to satisfy the licensee's market niche in Japan even when only pine-leading stands are targeted for harvest during the uplift period.

In this analysis, the contribution to the harvest of non-pine species was restricted in 2006 and 2007. I strongly believe that stewardship objectives are best met if this is indeed the case, as it is essential to ensure in the wake of this epidemic that non-pine stands are reserved for future timber supply. To confirm my supposition that harvesting any non-pine-leading stands at this time would result in a reduction to the mid-term harvest level, I requested that BCFS staff conduct an additional analysis.

In this analysis, rather than allowing no harvest of non-pine-leading stands in 2006 and 2007, BCFS staff allowed for the harvest of 55 000 cubic metres in these stands for each of these two years. In this harvest forecast, the mid-term harvest level was reduced to 187 000 cubic metres per year (32 000 cubic metres per year, or 17 percent less than in the forecast above). This lower mid-term level could not be increased to the long-term level any sooner than in the forecast above.

The results of this analysis confirmed my supposition that focusing the harvest on pine-leading stands is essential, in order to minimize further reductions in the mid-term harvest level. Even a relatively small volume (55 000 cubic metres per year) harvested from non-pine-leading stands results in reduced mid-term supply.

In my determination, I am also mindful of the need to consider appropriate levels of conservation retention in these larger openings as the salvage of pine stands progresses. I am aware that the licensee currently does not plan to explicitly meet higher retention levels (up to 25 percent) in large scale disturbances, as outlined above under *large scale disturbance and stand retention*. As noted previously, the licensee believes that the current stand level retention of between 10 and 12 percent will adequately provide for biodiversity needs on TFL 53.

Given the current views expressed by BCFS staff on this topic, I am not convinced that current retention levels in large openings on TFL 53 will provide adequate habitat. However, BCFS staff indicate that in the analysis they conducted, some pine-leading stands that did not meet the minimum volume requirement for harvest (140 cubic metres) were retained. These stands would likely be comprised of dead pine stems in combination with other species, and were assumed to regenerate to other species following an extended regeneration delay in the modelling. BCFS staff indicate that operationally, such stands would contribute towards the higher retention goals suggested in the research to be beneficial for biodiversity needs in these large scale salvage operations. In consideration of this, and the practice of the licensee to retain non-pine-leading patches, I am satisfied that a higher retention level is indeed likely to be realized operationally. However, I request that the licensee bear in mind these stewardship objectives during the planning of its operations on the TFL, and adjust retention levels as appropriate. A related consideration for the licensee to track is its ability to achieve the desired old growth retention objectives given the high level of mortality from the mountain pine beetle in combination with the increased level of short-term harvest.

I note the importance of directing the harvest in the short term to pine volume. While I am aware of the licensee's mill and market requirements for a component of other species, such as larger spruce sawlogs, I believe that these needs can be met for the short term through a combination of purchase on the log market, and the incidental non-pine volume present in the targeted stands. It is essential to direct the current and near-term harvest towards salvaging pine volume before it is lost.

In consideration of all the information presented to me as discussed throughout this document, I am satisfied that an appropriate harvest level for TFL 53, effective immediately, is 880 000 cubic metres per year. This harvest level will remain in effect from now until October 2008. At that time, the AAC will drop to 219 000 cubic metres because the dead timber that is not salvaged will no longer be suitable for processing into lumber. The high harvest level for the next three years is supported by the infested volume of pine on TFL 53, and the need to aggressively harvest the killed pine volume to obtain the economic value that remains. It is for this reason that I have chosen to determine the AAC in this manner, rather than as an averaged harvest level of 615 600 cubic metres per year. If at any time during the term of this determination, additional information becomes available to suggest that these harvest levels are no longer appropriate, I am prepared to revisit this determination sooner than the five years required by legislation. And, I note that the principles of good forest stewardship, as supported by the *Forest Practices Code* and the *Forest and Range Practices Act* and as modelled in the analyses discussed in this document, must prevail even in the light of this catastrophe.

Determination

I have considered and reviewed all the factors documented above, including the risks posed by and the uncertainties present in the information provided. It is my determination that the following AAC is necessary and appropriate for TFL 53 for the next five year period:

- From October 19, 2005 to October 19, 2008: 880 000 cubic metres (annually);
- From October 20, 2008 until the next determination: 219 000 cubic metres (annually);

At this time, as was the case with the 2003 uplift, and for reasons explained elsewhere in this document, I do <u>not</u> attribute any of the AAC to residual balsam-leading stands, or to aspen-conifer stands.

This determination is effective October 19, 2005 and will remain in effect until a new AAC is determined.

Implementation

I have increased the AAC at this time for TFL 53 in order to address the need for salvage of pine volume killed by the mountain pine beetle epidemic currently affecting the central interior of the province.

Over the term of this determination, I request that the licensee do the following:

Implementation

I have increased the AAC at this time for TFL 53 in order to address the need for salvage of pine volume killed by the mountain pine beetle epidemic currently affecting the central interior of the province.

Over the term of this determination, I request that the licensee do the following:

- Until October 19, 2008 direct the harvest on TFL 53 to pine-leading stands in accordance with the priorities specified in the base case for TFL 53, that is, pure pine stands harvested as the first priority and stands with an average pine component of 65 percent harvested as the second priority.
- Monitor the availability of old growth forest relative to the targeted objectives, and develop a strategy to manage for old growth as necessary in the wake of the MPB epidemic, including updating the Dunkley Lumber Ltd. Biodiversity Plan (March 2000) to consider retention objectives in light of the increased harvest associated with this determination;
- Collect data on the actual level of disturbance in the non-timber harvesting land base, and the implications of this disturbance on the contribution of the forests to old seral objectives;
- Work to strategically plan as far into the future as possible, and in a spatially explicit manner, the placement of retention and harvest areas, with consideration of the other values;
- Monitor actual stand volume realized in comparison to predicted volumes in managed stands;
- Work together with NIFR staff to reach an agreement on appropriate visual quality management;
- Work together with BCFS and Ministry of Environment wildlife staff to determine the implications of the IWMS; and
- Continue information sharing and consultation with First Nations on operational activities, to enable design and timing of forest operations to minimize impacts on First Nations' interests.

In addition, I request that BCFS staff continue to track the beetle epidemic on TFL 53 and let me know if harvesting priorities are not substantially in accordance with the priorities noted in this document.

Henry Benskin
Deputy Chief Forester

October 19, 2005

Appendix 1: Section 8 of the *Forest Act*

Section 8 of the Forest Act, Revised Statutes of British Columbia 1996, reads as follows:

8. Allowable annual cut

8. (1) The chief forester must determine an allowable annual cut at least once every 5 years after the date of the last determination, for

(a) the Crown land in each timber supply area, excluding tree farm licence areas, community forest agreement areas and woodlot licence areas, and

(b) each tree farm licence area.

(2) If the minister

(a) makes an order under section 7 (b) respecting a timber supply area, or

(b) amends or enters into a tree farm licence to accomplish a result set out under section 39 (2) or (3),

the chief forester must make an allowable annual cut determination under subsection (1) for the timber supply area or tree farm licence area

(c) within 5 years after the order under paragraph (a) or the amendment or entering into under paragraph (b), and

(d) after the determination under paragraph (c), at least once every 5 years after the date of the last determination.

(3) If

(a) the allowable annual cut for the tree farm licence area is reduced under section 9 (3), and

(b) the chief forester subsequently determines, under subsection (1) of this section, the allowable annual cut for the tree farm licence area,

the chief forester must determine an allowable annual cut at least once every 5 years from the date the allowable annual cut under subsection (1) of this section is effective under section 9 (6).

(3.1) If, in respect of the allowable annual cut for a timber supply area or tree farm licence area, the chief forester considers that the allowable annual cut that was determined under subsection (1) is not likely to be changed significantly with a new determination, then, despite subsections (1) to (3), the chief forester

(a) by written order may postpone the next determination under subsection (1) to a date that is up to 10 years after the date of the relevant last determination, and

(b) must give written reasons for the postponement.

(3.2) If the chief forester, having made an order under subsection (3.1), considers that because of changed circumstances the allowable annual cut that was determined under subsection (1) for a timber supply area or tree farm licence area is likely to be changed significantly with a new determination, he or she

(a) by written order may rescind the order made under subsection (3.1) and set an earlier date for the next determination under subsection (1), and

(b) must give written reasons for setting the earlier date.

(4) If the allowable annual cut for the tree farm licence area is reduced under section 9 (3), the chief forester is not required to make the determination under subsection (1) of this section at the times set out in subsection (1) or (2) (c) or (d), but must make that determination within one year after the chief forester determines that the holder is in compliance with section 9 (2).

(5) In determining an allowable annual cut under subsection (1) the chief forester may specify portions of the allowable annual cut attributable to

(a) different types of timber and terrain in different parts of Crown land within a timber supply area or tree farm licence area,

(b) different types of timber and terrain in different parts of private land within a tree farm licence area, and

(c) repealed [1999-10-1].

(6) The regional manager or district manager must determine an allowable annual cut for each woodlot licence area, according to the licence.

(7) The regional manager or the regional manager's designate must determine an allowable annual cut for each community forest agreement area, in accordance with

(a) the community forest agreement, and

(b) any directions of the chief forester.

(8) In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a) the rate of timber production that may be sustained on the area, taking into account

(i) the composition of the forest and its expected rate of growth on the area,

(ii) the expected time that it will take the forest to become re-established on the area following denudation,

(iii) silviculture treatments to be applied to the area,

(iv) the stand of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area,

(v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production, and

(vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber,

(b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area,

(c) Repealed. [2003-31-2 (B.C.Reg 401/2003)]

(d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia, and

(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

Appendix 2: Section 4 of the *Ministry of Forests Act*

Section 4 of the *Ministry of Forests Act* (consolidated 1988) reads as follows:

Purposes and functions of ministry

4. The purposes and functions of the ministry are, under the direction of the minister, to

(a) encourage maximum productivity of the forest and range resources in British Columbia;

(b) manage, protect and conserve the forest and range resources of the government, having regard to the immediate and long term economic and social benefits they may confer on British Columbia;

(c) plan the use of the forest and range resources of the government, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are co-ordinated and integrated, in consultation and co-operation with other ministries and agencies of the government and with the private sector;

(d) encourage a vigorous, efficient and world competitive timber processing industry in British Columbia; and

(e) assert the financial interest of the government in its forest and range resources in a systematic and equitable manner.

Documents attached:

Appendix 3: Minister of Forests' letter of July 28, 1994

Appendix 4: Minister of Forests' memo of February 26, 1996

File: 10100-01

JUL 28 1994

John Cuthbert
Chief Forester
Ministry of Forests
595 Pandora Avenue
Victoria, British Columbia
V8W 3E7

Dear John Cuthbert:

Re: Economic and Social Objectives of the Crown

The *Forest Act* gives you the clear responsibility for determining Allowable Annual Cuts, decisions with far-reaching implications for the province's economy. The *Forest Act* provides that you consider the social and economic objectives of the Crown, as expressed by me, in making these determinations. The purpose of this letter is to provide this information to you.

The social and economic objectives expressed below should be considered in conjunction with environmental considerations as reflected in the Forest Practices Code, which requires recognition and better protection of non-timber values such as biodiversity, wildlife and water quality.

The government's general social and economic objectives for the forest sector are made clear in the goals of the Forest Renewal Program. In relation to the Allowable Annual Cut determinations you must make, I would emphasize the particular importance the government attaches to the continued availability of good forest jobs and to the long-term stability of communities that rely on forests.

Through the Forest Renewal Plan, the government is taking the steps necessary to facilitate the transition to more value-based management in the forest and the forest sector. We feel that adjustment costs should be minimized wherever possible, and to this end, any decreases in allowable cut at this time should be no larger than are necessary to avoid compromising long-run sustainability.

.../2

Province of British Columbia
Minister of Forests
Parliament Buildings
Victoria, British Columbia
V8V 1X4

In addition to the provincial perspective, you should also consider important local social and economic objectives that may be derived from the public input on the Timber Supply Review discussion papers where these are consistent with the government's broader objectives.

Finally, I would note that improving economic conditions may make it possible to harvest timber which has typically not been used in the past. For example, use of wood from commercial thinnings and previously uneconomic areas may assist in maintaining harvests without violating forest practices constraints. I urge you to consider all available vehicles, such as partitioned cuts, which could provide the forest industry with the opportunity and incentive to demonstrate their ability to utilize such timber resources.

Yours truly,

Andrew Petter
Minister

Province of British Columbia
Ministry of Forests
OFFICE OF THE MINISTER

MEMORANDUM

File: 16290-01

February 26, 1996

To: Larry Pedersen
Chief Forester

From: The Honourable Andrew Petter
Minister of Forests

Re: **The Crown's Economic And Social Objectives Regarding Visual Resources**

Further to my letter of July 29, 1994, to your predecessor, wherein I expressed the economic and social objectives of the Crown in accordance with Section 7 of the *Forest Act*, I would like to elaborate upon these objectives as they relate to visual resources.

British Columbia's scenic landscapes are a part of its heritage and a resource base underlying much of its tourism industry. They also provide timber supplies that are of significant economic and social importance to forest industry dependent communities.

Accordingly, one of the Crown's objectives is to ensure an appropriate balance within timber supply areas and tree farm licence areas between protecting visual resources and minimizing the impact of such protection measures on timber supplies.

As you know, I have directed that the policy on management of scenic landscapes should be modified in light of the beneficial effects of the Forest Practices Code. In general, the new policy should ensure that establishment and administration of visual quality objectives is less restrictive on timber harvesting. This change is possible because alternative harvesting approaches as well as overall improvement in forest practices will result in reduced detrimental impacts on visually sensitive areas. Also, I anticipate that the Forest Practices Code will lead to a greater public awareness that forest harvesting is being conducted in a responsible, environmentally sound manner, and therefore to a decreased public reaction to its visible effects on the landscape. In relation to the Allowable Annual Cuts determinations that you make, please consider the effects that the new policy will have in each Timber Supply Area and Tree Farm Licence.

.../2

In keeping with my earlier letter, I would re-emphasize the Crown's objectives to ensure community stability and minimize adjustment costs as the forest sector moves to more value-based management. I believe that the appropriate balance between timber and visual resources will be achieved if decisions are made consistent with the ministry's February 1996 report *The Forest Practices Code: Timber Supply Analysis.*

Finally, in my previous letter I had asked that local economic and social objectives be considered. Please ensure that local views on the balance between timber and visual resources are taken into account within the context of government's broader objectives.

Andrew Petter
Minister of Forests